



## **FOOD ADVERTISING AND OBESITY**

### **3 CASE STUDIES: THE NETHERLANDS, SWEDEN AND QUEBEC**

Levels of obesity and overweight have risen dramatically across the world in recent years, in the developing and developed worlds, research into the causes of obesity have accelerated. There is a broad scientific consensus that, although the problem is one of an imbalance between calorie intake and energy expenditure, the root causes of obesity are multi-factorial and complex. Known influences on obesity include the family and school environments, socio-economic status, genetics, access to food and many other environmental factors that impact on food choices.

Some academics and pressure groups have linked the phenomenon of rising obesity to the level of food advertising. These groups claim that exposure to advertising leads individuals, and children in particular, to over-consume certain types of products. In particular, they claim that due to the high volume of advertising during children's programming for food products, children are influenced to eat a disproportionate amount of this food. As a result, these children become fatter and childhood obesity increases.

There is no doubt that childhood obesity is a serious issue for both the developing and the developed worlds. In recognition of this fact, the World Health Organisation (WHO) has initiated a Global Strategy on Diet, Physical Activity and Health. As part of its expert consultation, the WHO issued a Technical Report that identified the link between food marketing and obesity is 'not unequivocal'. However, in its discussion of marketing, the WHO concluded that marketing was a 'probable causative factor' in the development of obesity. Furthermore, the WHO argued that 'part of the consistent, strong relationships between television viewing and obesity in children may relate to the food advertising to which they are exposed.'<sup>1</sup>

This paper explores the question of whether there is a correlation between advertising and obesity levels from an empirical point of view, by means of three case studies: The Netherlands, Sweden and Quebec. In each case, three variables were considered: levels of food advertising, levels of obesity and levels of physical activity. Sweden and Quebec were chosen because in both countries advertising to children is banned on terrestrial television, although there continues to be some exposure to advertising to children via satellite television transmitted from other markets. In the Netherlands the level of advertising to children, particularly food advertising, is considered high while obesity levels are relatively low for Europe.

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<sup>1</sup> World Health Organisation: "Report of a Joint FAO/WHO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases", Geneva: 2003.

## I. OVERALL CONCLUSIONS

- **Adult obesity rates in Quebec are somewhat lower than the Canadian average. Of most interest is the 15-24 age group, among which overweight/obesity rates actually decreased between 1992-93 and 1998. The reason for this phenomenon remains unclear. Accurate measurements of childhood obesity in Quebec are not yet available, but the literature suggests that they are comparable to the average Canadian level.**
- **Levels of physical activity among adults in Quebec are comparable to overall Canadian levels, if slightly lower. Children in Quebec are less active [and watch more television] than Canadian children as a whole.**
- **The slightly lower levels of obesity in Quebec are therefore not explained by higher levels of physical activity.**
- **It is not possible to determine, though, what the impact of the ban on advertising to children, which also has a quantitative and qualitative impact on food and drink advertising as a whole, may be on obesity levels in Quebec, if any.**
- **The three countries examined feature a similar level of per capita expenditure on advertising. Sweden and The Netherlands also feature similar levels of advertising expenditure on food and drink products. However, advertising to children is banned in Quebec and in Sweden, but not in The Netherlands. Despite this, overweight/obesity levels in adults and, most likely, in children, are about twice as high in Quebec as they are in Sweden and The Netherlands.**
- **Physical activity levels are considerably lower in Quebec than in The Netherlands and particularly than in Sweden. This, as well as diet and nutrition, might explain the much higher incidence of overweight/obesity in Quebec and Canada as a whole.**
- **Despite relatively high and still improving levels of physical activity in Sweden and The Netherlands, obesity is on the rise, particularly among children.**
- **Despite the ban on advertising to children in Sweden, childhood overweight/obesity rates are higher there than in The Netherlands.**
- **The empirical comparison clearly shows that there is no direct correlation between food advertising and obesity, whereas the link between physical activity and obesity levels is apparent.**

## I. QUEBEC

### A. Obesity

The preliminary 1999 results of the Canadian National Longitudinal Survey of Children and Youth show that in 1994-95, 34% of children aged 2-11 were overweight and 16% obese. In 1998/99, 37% were overweight and 18% obese.<sup>2</sup>

Obesity levels in Quebec are somewhat lower than the Canadian average:

- “There are substantial interprovincial variations in BMI. In 1998/99, both Quebec and British Columbia residents were among the most likely to be at an acceptable BMI (46% and 45%, respectively). Newfoundland and New Brunswick had high rates of overweight people (43% and 42%, respectively), while Quebec and British Columbia had low rates (27% and 28%, respectively). For previous cycles (1994/95 and 1996/97), a similar pattern of differences among provinces existed, although proportions were different.”<sup>3</sup>
- Within Quebec, overweight and obesity have been on the increase among all age groups over the past 15 years. The exception is the 15-19 age group, where prevalence increased considerably between 1987 and 1992-93 (from 10.8% to 17.45% overweight or obese), but actually decreased significantly between 1992-93 and 1998 (from 17.45% to 15.95%).

A longitudinal study on the development of children (ELDEQ) is currently under way also in Quebec. ELDEQ started in 1998 with cohorts of children aged 5 months to 11 years and will run until all participants are 25 years old. It reports biannually. One element that will be followed in the course of the study is the development of the children's BMI. However, no such data is available from the survey as yet.

Table 3 below illustrates the only overall comparison between the incidence of overweight/obesity between Canada and Quebec that is possible on the basis of comparable data.

**Table 3: Overweight/obesity in Quebec vs Canada**

	Year	Age group	Slightly overweight (BMI>25<27)	Severely overweight and obese (BMI>27)	Total overweight or obese (BMI>25)
Canada	2002	20-64	15.6%	31.9%	47.5%
Quebec	2002	20-64	15.2%	29%	44.2%

Table 3 shows that the prevalence of adult obesity is 3.3% lower in Quebec than in Canada. No comparable data is available for individual age groups or children, but available evidence suggests that the rates of incidence are not significantly different. The one figure that is most interesting but not explained is the decreasing level of overweight/obesity among the 15-19 age group in Quebec between 1992-93 and 1998. No comparative data is available for Canada as a whole.

<sup>2</sup> Statistics Canada: The Daily, Oct 18 2002.

<sup>3</sup> Statistics Canada: Health Indicators, vol. 2 2002, no.2

## B. Physical Activity

Table 4 below illustrates the level of physical activity among the Quebequois population according to the latest figures available:

Year	Age group	PA 3 or more times/week	PA twice/week	PA once/week	PA 1-3 times/month	Never
1992-93 <sup>4</sup>	>15	25.3%	13.1	14.8%	20.5%	26.4%
1998 <sup>5</sup>	>15	26%	13.8%	12.3%	19%	29%

Table 5 below illustrates the level of physical activity among the Canadian population as a whole, for the purposes of a comparison with physical activity levels in Quebec.

**Table 5: Physical activity in Canadian adults<sup>6</sup>**

Year	Active (>3 KKD) <sup>7</sup>	Moderately active (1.5-2.9 KKD)	Somewhat active (0.5-1.4 KKD)	Sedentary (<0.5 KKD)
1981	21%	17%	62%	
1988	29%		Approx. 50%	
1995	37%	28%	23%	12%

Table 5 shows that:

- On average, the percentage of Canadians over 18 who are active has increased by about 1% every year, from 21% in 1981 to 37% by 1995.
- The percentage of Canadians who are moderately active has also increased significantly over the years, from 17% in 1981 to 28% by 1995. Most of this increase occurred between 1981 and 1988.
- As a result, there has been an important decrease in the proportion of Canadians reporting lower levels of activity, from 62% in 1981 to 35% by 1995.
- Physical inactivity remains pervasive in Canada, with 61% of adults aged 18 and older still considered insufficiently active for optimal health benefits in 2000, compared with 79% in 1981.

Concerning children, the following data is available<sup>8</sup>:

- Over half of children and youth aged 5-17 are not active enough for optimal growth and development.

<sup>4</sup> Sante Quebec. Enquete sociale et de Sante 1992-93.

<sup>5</sup> Institut de la Statistique du Quebec. Enquete Sociale et de Sante 1998.

<sup>6</sup> Canadian Fitness and Lifestyle Research Institute. Physical Activity Monitor 1995.

<sup>7</sup> Kilocalories/Kg of body weight/day. An energy expenditure of 3KKD is equivalent to walking one hour every day.

<sup>8</sup> See footnote 24.

- While only one-third of Canadian children aged 5 to 17 meet the optimal energy expenditure of 8 KKD (kilocalories per kilogram per day), the average energy expenditure is not far behind, at 7.3 KKD. A small increase in daily activities would therefore allow many more children to meet the guideline.

The level of physical activity among adults has also increased in Quebec over the past two decades. The latest data<sup>9</sup> comparable to that used above for Canada as a whole, shows that:

- Physical inactivity declined significantly since the early 1980s, going from 82% in 1981 to 62% in 2000.
- As many as 62% are still insufficiently active for optimal health benefits.

Levels of physical activity among adults in Quebec are therefore comparable to overall Canadian levels, if slightly lower. According to the Canadian Fitness and Lifestyle Research Institute, children in Quebec are less active than Canadian children as a whole:

**“The activity levels of children and youth remain relatively consistent nationwide except in Quebec, where children and youth are more likely to be inactive.”<sup>10</sup>**

### **C. Obesity and physical activity in Quebec and Canada**

- **“The growing rate of overweight/obesity observed by the WHO in all regions of the world is also applicable to the population of Quebec. However, the North-American phenomenon of weight growth could be less stark in Quebec, particularly among individuals aged 15-19.”<sup>11</sup>**
- The slightly lower levels of obesity in Quebec are not matched by higher levels of physical activity. On the contrary, physical activity levels are slightly lower in Quebec, particularly among children (although no meaningful comparable data on childhood obesity in Quebec is yet available).
- Incidentally, the Quebecois population watches more television than the Canadian average, including children and adolescents: 23.5 hours/week in Quebec, against 21.2 hours/week for the Canadian average.<sup>12</sup>
- The difference in obesity levels between Quebec and Canada as a whole is however not highly significant among the adult population and available data does not allow a meaningful comparison between levels of childhood obesity.

### **Advertising in Quebec and Canada**

#### **Advertising expenditure**

Canada: Canadian advertising expenditure reached USD 5.134 bn in 2000. TV advertising expenditure amounted to USD 1.654 bn, i.e.32.2%.<sup>13</sup> In terms of per capita expenditure, the figure is equivalent to USD 174.3.

<sup>9</sup> See above.

<sup>10</sup> See above.

<sup>11</sup> Institut de la statistique du Quebec, Enquete sociale e t de sante 1998

<sup>12</sup> Statistics Canada 2001 (<http://www.statcan.ca/english/Pgdb/arts23.htm>)

<sup>13</sup> World Federation of Advertisers ([www.wfanet.org](http://www.wfanet.org))

**Quebec:** Quebec's share of total Canadian advertising expenditure is estimated at 27%, i.e. USD 1.992 bn.<sup>14</sup> With a population of 7,455,000<sup>15</sup>, Quebec's per capita advertising expenditure in 2000 would have been USD 267.2, i.e. significantly above the national average. There is no data about the levels of food advertising in Quebec.

### Advertising restrictions

Advertising to children under the age of 13 has been banned under the Quebec Consumer Protection Act since 1978. Sections 248 and 249 specify:

248. *Subject to what provided in the regulations, no person may make use of commercial advertising directed at persons under the age of 13, as follows:*

249. *To determine whether or not an advertisement is directed at persons under thirteen years of age, account must be taken of the context of its presentation, and in particular of*

(a) *the nature and intended purpose of the goods advertised;*

(b) *the manner of presenting such advertisement;*

(c) *the time and place it is shown*

## II. SWEDEN

### A. Obesity in Sweden

Swedish statistics on overweight/obesity levels are less abundant than Canadian statistics. The available data indicates the following:

- The overall level of overweight/obesity in Sweden is around 40% among the adult population.
- Three quarters of this figure concerns overweight, while obesity reaches 11% among the adult population and 9.2% among overall.
- The incidence of overweight/obesity among 10-year olds reached 18% in 2000/2001.

**Table 6: Obesity in Sweden**

Year	Age group	Overweight (BMI>25<30)	Obese (BMI>30)	Overweight or obese (BMI>25)
2001 <sup>16</sup>	>18	29%	11%	40%
2001 <sup>17</sup>	All		9.2%	
2000/2001 <sup>18</sup>	10			18%

<sup>14</sup> Industry Canada: <http://strategis.ic.gc.ca/SSG/dm01382e.html>

<sup>15</sup> Statistics Canada ([www.statcan.ca](http://www.statcan.ca))

<sup>16</sup> International Obesity Task Force 2001: [www.iotf.org](http://www.iotf.org)

<sup>17</sup> OECD Health Data 2003: [www.oecd.org](http://www.oecd.org)

<sup>18</sup> International Obesity Taskforce. Obesity in Europe, 2002. [www.iotf.org](http://www.iotf.org)

## **B. Physical Activity**

The available data suggests that the Swedish population is physically very active by international standards:

- Almost 50% of Swedes aged 7-70 (7 million people) are members of a sports club. More than 2/3 of boys and over 50% of girls aged 7-15 belong to a sports club.<sup>19</sup>
- 69% of all Swedes do at least some sports.
- 36% of Swedes are involved in competitive, organised and intensive or simply intensive sports.
- 74% of Swedish children aged 12-16 participate in competitive, organised and intensive or simply intensive sports.
- 54% of Swedish children aged 6-11 participate in competitive, organised and intensive or simply intensive sports.<sup>20</sup>

## **C. Advertising in Sweden**

Advertising expenditure: In 2000, advertising expenditure in Sweden amounted to USD 1.868 bn, of which TV accounted for USD 431.3 m, i.e. 23.1%.<sup>21</sup> In terms of per capita expenditure, this amounts to USD 210.8. In 1998, the food and tobacco industries' share of the total expenditure was estimated at 15%, a significant way behind the retail sector.<sup>22</sup>

According to Consumers International, 21% of all advertising in Sweden is for food, averaging less than one food advertisement per hour. The average number of advertisements per hour in Sweden is three.<sup>23</sup>

Advertising restrictions: In Sweden advertising to children under the age of 12 is banned. Further, TV programmes may not be interrupted by advertising and no advertising is allowed before and after children's TV programmes.

## **IV. THE NETHERLANDS**

### **A. Obesity in The Netherlands**

Obesity has been on the increase in the Netherlands, as in all OECD countries over the past couple of decades. However, obesity levels remain relatively low by international comparison.

The latest available figures on obesity in The Netherlands show that:

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<sup>19</sup> [www.sweden.se](http://www.sweden.se) The official gateway to Sweden.

<sup>20</sup> European Commission. COMPASS 1999 report, "Sports Participation in Europe"

<sup>21</sup> World Federation of Advertisers ([www.wfanet.org](http://www.wfanet.org))

<sup>22</sup> Statistics Canada ([strategis.ic.gc.ca/SSG/dd74023e.html](http://strategis.ic.gc.ca/SSG/dd74023e.html))

<sup>23</sup> Data drawn from two studies by Consumers International: "A Spoonful of Sugar" (1996); and "Easy Targets" (1999).

- 38% of adults were overweight or obese in 2001, 11% of which obese.
- 14% of all 10-year-old children were overweight or obese in 1997.

**Table 7: Obesity in The Netherlands**

Year	Age group	Overweight (BMI>25<30)	Obese (BMI>30)	Overweight or obese (BMI>25)
1987 <sup>24</sup>	20-59		7.25%	
1995 <sup>25</sup>	20-59		8.35%	
1980 <sup>26</sup>	10			10%
1997 <sup>27</sup>	10			14%
2001 <sup>28</sup>	>18	27%	11%	38%
2001 <sup>29</sup>	All		9.3%	
1989	>20			35.4%
2000 <sup>30</sup>	>20			44.1%

### **B. Physical activity**

The Dutch population is physically active by international standards:

- In 2003, 13% of the population aged 4 and over took 5 hours of exercise a week or more (constant since 1997).
- 42% took 1-4 hours per week (up from 40% in 1997).
- 50% of individuals aged 15 and over exercise for more than 1 hr/week.
- 78% of teenagers between age 15 and 18 exercise for more than 1 hr/week.<sup>31</sup>
- 63% of Dutch people of all ages do some sports.
- 16% of Dutch people are involved in competitive, organised and intensive, or simply intensive sports.
- 89% of Dutch under-16s do some sports.
- 34% of Dutch children aged 12-16 participate in competitive, organised and intensive or simply intensive sports.
- 19% of Dutch children aged 6-11 participate in competitive, organised and intensive or simply intensive sports.<sup>32</sup>

<sup>24</sup> World Health Organisation 1998. [www.who.int](http://www.who.int)

<sup>25</sup> As above.

<sup>26</sup> International Obesity Task Force 2002. Obesity in Europe ([www.iotf.org](http://www.iotf.org))

<sup>27</sup> As above.

<sup>28</sup> International Obesity Task Force 2001 ([www.iotf.org](http://www.iotf.org))

<sup>29</sup> OECD Health Data 2003. [www.oecd.org](http://www.oecd.org)

<sup>30</sup> Centraal Bureau voor de Statistiek 2003 ([www.cbs.nl](http://www.cbs.nl)):

<sup>31</sup> Centraal Bureau voor de Statistiek 2003 ([www.cbs.nl](http://www.cbs.nl))

<sup>32</sup> European Commission. COMPASS 1999 report, "Sports Participation in Europe"

### C. Advertising in the Netherlands

Advertising expenditure: In 2000, advertising expenditure in The Netherlands amounted to USD 3.592 bn, of which USD 706.5 m was spent on TV advertising, i.e. 19.6%. In terms of per capita annual expenditure, this is equivalent to USD 226.4.<sup>33</sup>

The share of food advertising was estimated at 12.3% of total advertising expenditure in 1998, in first place, slightly in front of the retail sector.<sup>34</sup>

## V. OVERALL ANALYSIS

### A. Comparative analysis of levels of food advertising and obesity in Quebec, Sweden and The Netherlands

In table 8 below, a comparison is made between overall expenditure on advertising, expenditure on food advertising and obesity levels.

**Table 8: Advertising expenditure and obesity levels.**

Country	Adspend per capita (USD) <sup>35</sup>	Proportion of food advertising	Adult overweight/Obesity (BMI>25)	Childhood overweight/Obesity (BMI>25)
Quebec	267.2	N/A	44.2% <sup>36</sup>	N/A (Canada: 26.2% <sup>37</sup> or 37% <sup>38</sup> )
Sweden	210.8	<15% <sup>39</sup>	40% <sup>40</sup>	18% <sup>41</sup>
NL	226.4	12.3% <sup>42</sup>	39% <sup>43</sup>	14% <sup>44</sup>

Table 8 above shows that:

- Per capita advertising expenditure is comparable in the three countries, though slightly higher in Quebec.
- Adult overweight/obesity levels are also comparable, though slightly higher in Quebec.
- **Childhood overweight/obesity is not accurately measured in Quebec, but is likely to be similar to overall Canadian levels, i.e. about twice as high as in Sweden and the Netherlands.**

<sup>33</sup> World Federation of Advertisers ([www.wfanet.org](http://www.wfanet.org))

<sup>34</sup> Statistics Canada ([www.strategis.ic.gc.ca/SSG/dd73225e.html](http://www.strategis.ic.gc.ca/SSG/dd73225e.html))

<sup>35</sup> World Federation of Advertisers ([www.wfanet.org](http://www.wfanet.org))

<sup>36</sup> Statistics Canada: Health Indicators, vol. 2 2002, no.2

<sup>37</sup> Children aged 7-13. Statistics Canada. The Daily, Oct 18 2002.

<sup>38</sup> Children aged 2-11. Statistics Canada. The Daily, Oct 18 2002.

<sup>39</sup> Statistics Canada ([www.strategis.ic.gc.ca/SSG/dd73225e.html](http://www.strategis.ic.gc.ca/SSG/dd73225e.html)).

<sup>40</sup> International Obesity Task Force 2001: [www.iotf.org](http://www.iotf.org)

<sup>41</sup> Children aged 10. International Obesity Task Force 2001: [www.iotf.org](http://www.iotf.org)

<sup>42</sup> Statistics Canada ([www.strategis.ic.gc.ca/SSG/dd73225e.html](http://www.strategis.ic.gc.ca/SSG/dd73225e.html))

<sup>43</sup> International Obesity Task Force 2001: [www.iotf.org](http://www.iotf.org)

<sup>44</sup> Children aged 10. International Obesity Task Force 2001: [www.iotf.org](http://www.iotf.org)

In Table 9 below a comparison is made between the level of food advertising to children on TV in The Netherlands and in Sweden – where it is banned but on domestic channels – and childhood overweight/obesity levels. Relevant data for Quebec is not available, but can be extrapolated for the purposes of an approximate estimate.

**Table 9: Levels of food advertising to children<sup>45</sup> and of childhood overweight and obesity<sup>46</sup>**

Country	Number of Ads per Hour+	Minutes of Advertising per Hour	Percent of Ads That Are For Food	Average No. of Food Ads per Hour	% overweight or obese <sup>47</sup>
Netherlands	5	2	84%	4	14
Sweden	3	1	21%	<1	18
Quebec	N/A	N/A	N/A	N/A	N/A

Sweden, with less than 1 food advert per hour on average under the ban on advertising to children on terrestrial television, has a childhood overweight/obesity rate of 18%, 4% above the Dutch rate (14%).

Figures for Quebec are not available. However, the following considerations can be made:

- Because of the ban on advertising to children, the average number of food adverts per hour on Quebec TV should be < 1, as in Sweden.
- In 1996, the prevalence of overweight among Canadian children aged 7-13 was 26.2%, of which 12.7% obese.
- Although overweight/obesity levels are marginally lower in Quebec than in Canada as a whole, the incidence among children is unlikely to differ substantially.<sup>48</sup>
- Even if the incidence of childhood overweight/obesity were lower than the Canadian rate by the same margin as adult overweight/obesity (3.3% in 2002)<sup>49</sup>, childhood overweight/obesity in Quebec would still have been at 22.9% in 1996 – i.e. significantly higher than both The Netherlands and Sweden.

**As a result, it must be concluded that from a comparative analysis of Quebec, The Netherlands and Sweden, no correlation can be observed between the amount and type of advertising on the one hand and the level of overweight/obesity among the population – both adult and child.**

#### **B. Comparative analysis of levels of obesity and physical activity**

<sup>45</sup> Data drawn from Consumers International: "A Spoonful of Sugar" (1996)

<sup>46</sup> Data from the International Obesity Taskforce (IOTF - [www.ietf.org](http://www.ietf.org)).

<sup>47</sup> Overweight is defined as a Body Mass Index (BMI) of 25-29.9; Obesity is a BMI of 30 or above.

<sup>48</sup> See footnote 20.

<sup>49</sup> See Table 3.

It is difficult to determine empirically whether there is a correlation, as common sense would indicate, between overweight/obesity and physical activity levels. The difficulty is due to the different indicators which are often used to determine physical activity levels. Nonetheless, an attempt is made in Table 10 below. Only data for Sweden and The Netherlands is examined, as the indicators used for Quebec are not comparable, and only comparable indicators for Sweden and The Netherlands are used.

**Table 10: Levels of physical activity and obesity.**

Country	Adult overweight/obesity (BMI>25)	Adult obesity (BMI>30)	Childhood overweight/obesity	Childhood obesity (BMI>30)
Sweden <sup>50</sup>	40%	11%	18%	N/A
NL <sup>51</sup>	39%	11%	14%	N/A
Country	At least some sports (adults)	Competitive/organised/intensive sports (adults)	Children 12-16 Competitive/Organised/Intensive sports	Children 6-11 Competitive/organised/intensive sports
Sweden <sup>52</sup>	69%	36%	74%	54%
NL <sup>53</sup>	63%	16%	34%	19%

The data above on physical activity is quantitatively and qualitatively limited. Nonetheless, Table 10 does show that:

- Physical activity levels are relatively high by international standards in both Sweden and The Netherlands.
- Physical activity levels are particularly high in Sweden.
- Obesity rates are comparable in the two countries: equal for adults and somewhat higher among Swedish than Dutch children, despite apparently even higher physical activity levels among Swedish children.

*AEF Secretariat  
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<sup>50</sup> International Obesity Task Force 2001 (www.ietf.org)

<sup>51</sup> As above.

<sup>52</sup> European Commission. COMPASS 1999 report, "Sports Participation in Europe"

<sup>53</sup> As above.